

DOE/CF-0096  
Volume 1

# **Department of Energy FY 2015 Congressional Budget Request**



## **National Nuclear Security Administration**

**Federal Salaries and Expenses  
Weapons Activities  
Defense Nuclear Nonproliferation  
Naval Reactors**

**FY 2015 Congressional Budget**

**Volume 1**

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**Fissile Materials Disposition  
Funding**

(Dollars in Thousands)

	FY 2013 Current	FY 2014 Enacted	FY 2014 Current <sup>a</sup>	FY 2015 Request	FY 2015 vs FY 2014 Enacted
<b>Fissile Materials Disposition</b>					
<b>U.S. Surplus Fissile Materials Disposition</b>					
<b>Operations and Maintenance (O&amp;M)</b>					
<b>U.S. Plutonium Disposition</b>					
Waste Solidification Building (WSB) Other Project Costs (OPC)	25,798	20,000	20,000	0	-20,000
WSB Operating Expenses (O&M)	7,000	0	0	0	0
MOX Fuel Fabrication Facility (MFFF) OPC	40,000	40,000	40,000	25,000	-15,000
MOX Irradiation, Feedstock, and Transportation (MIFT)	83,757	63,000	63,000	60,000	-3,000
Plutonium Disposition and Infrastructure Program (PDIP) <sup>b</sup>	32,925	34,557	34,557	0	-34,557
Program Management and Integration (PMI) (Formerly PDIP)	0	0	0	0	0
<b>Subtotal, U.S. Plutonium Disposition</b>	<b>189,480</b>	<b>157,557</b>	<b>157,557</b>	<b>85,000</b>	<b>-72,557</b>
<b>U.S. Uranium Disposition</b>	<b>23,958</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>0</b>
<b>Total, Operations and Maintenance</b>	<b>213,438</b>	<b>182,557</b>	<b>182,557</b>	<b>110,000</b>	<b>-72,557</b>
<b>Construction</b>					
99-D-141-02 Waste Solidification Building (WSB)	48,404	0	0	5,125	+5,125
99-D-143 MOX Fuel Fabrication Facility (MFFF)	400,990	343,500	402,743	196,000	-147,500
<b>Subtotal, Construction</b>	<b>449,394</b>	<b>343,500</b>	<b>402,743</b>	<b>201,125</b>	<b>-142,375</b>
<b>Total, U.S. Surplus Fissile Materials Disposition</b>	<b>662,832</b>	<b>526,057</b>	<b>585,300</b>	<b>311,125</b>	<b>-214,932</b>
<b>Russian Surplus Fissile Materials Disposition</b>					
<b>Russian Materials Disposition</b>					
Funds Spent in US	922	0	0	0	0
Funds Spent in Russia	0	0	0	0	0
<b>Subtotal, Russian Materials Disposition</b>	<b>922</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total, Fissile Materials Disposition</b>	<b>663,754</b>	<b>526,057</b>	<b>585,300</b>	<b>311,125</b>	<b>-214,932</b>

<sup>a</sup> Reflects a reprogramming of \$59,242,760 from FY 2013 International Material Protection and Cooperation funding to Fissile Material Disposition in FY 2014.

<sup>b</sup> Plutonium Disposition and Infrastructure Disposition (PDIP) will be renamed beginning in FY 2015 to Program Management and Integration (PMI).

**Outyears for Fissile Materials Disposition**

	(Dollars in Thousands)			
	FY 2016 Request	FY 2017 Request	FY 2018 Request	FY 2019 Request
<b>Fissile Materials Disposition</b>				
<b>U.S. Surplus Fissile Materials Disposition</b>				
<b>Operations and Maintenance (O&amp;M)</b>				
<b>U.S. Plutonium Disposition</b>				
Waste Solidification Building (WSB) Other Project Costs (OPC)	0	0	0	0
WSB Operating Expenses (O&M)	5,000	5,000	5,000	5,000
MOX Fuel Fabrication Facility (MFFF) OPC	25,000	25,000	25,000	25,000
MOX Irradiation, Feedstock, and Transportation (MIFT)	51,187	55,951	60,000	60,000
Plutonium Disposition and Infrastructure Program (PDIP)	0	0	0	0
Program Management and Integration (PMI) (Formerly PDIP)	5,000	8,000	6,717	14,484
<b>Subtotal, U.S. Plutonium Disposition</b>	<b>86,187</b>	<b>93,951</b>	<b>96,717</b>	<b>104,484</b>
<b>U.S. Uranium Disposition</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>
<b>Total, Operations and Maintenance Construction</b>	<b>111,187</b>	<b>118,951</b>	<b>121,717</b>	<b>129,484</b>
99-D-141-02 Waste Solidification Building (WSB)	0	0	0	0
99-D-143 MOX Fuel Fabrication Facility (MFFF)	196,000	196,000	196,000	196,000
<b>Subtotal, Construction</b>	<b>196,000</b>	<b>196,000</b>	<b>196,000</b>	<b>196,000</b>
<b>Total, U.S. Surplus Fissile Materials Disposition</b>	<b>307,187</b>	<b>314,951</b>	<b>317,717</b>	<b>325,484</b>
<b>Russian Surplus Fissile Materials Disposition</b>				
<b>Russian Materials Disposition</b>				
Funds Spent in US	2,000	2,000	3,000	3,000
Funds Spent in Russia	3,000	3,000	7,000	7,000
<b>Subtotal, Russian Materials Disposition</b>	<b>5,000</b>	<b>5,000</b>	<b>10,000</b>	<b>10,000</b>
<b>Total, Fissile Materials Disposition</b>	<b>312,187</b>	<b>319,951</b>	<b>327,717</b>	<b>335,484</b>

**Fissile Materials Disposition  
Explanation of Major Changes  
(Dollars in Thousands)**

FY 2015 vs FY 2014 Enacted
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**Fissile Materials Disposition**

**U.S. Surplus Fissile Materials Disposition**

**U.S. Plutonium Disposition:** The overall decrease is mainly attributed to the slowdown of the plutonium disposition program and placing the MOX Fuel Fabrication Facility (MFFF) project in cold stand-by while the analysis of the plutonium disposition options is completed. **-72,557**

**U.S. Uranium Disposition:** No change from FY 2014 to FY 2015. **0**

**Construction:** The overall decrease is mainly attributed to placing the MFFF project in cold stand-by while the analysis of the plutonium disposition options is completed. **-142,375**

**Russian Surplus Fissile Materials Disposition:** No change from FY 2014 to FY 2015. Activities for this program are continuing to be supported from prior-year uncosted balances **0**

**Total, Fissile Materials Disposition**

**-214,932**

**Fissile Materials Disposition**  
**U.S. Surplus Fissile Materials Disposition – U.S. Plutonium Disposition**

**Description**

The goal of the U.S. Plutonium Disposition subprogram is to dispose of at least 34 metric tons (MT) of surplus U.S. weapon-grade plutonium in accordance with U.S. policy and the amended U.S. - Russia Plutonium Management and Disposition Agreement (PMDA).

To dispose of U.S. plutonium, the program has been constructing the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF), which would enable the Department to dispose of weapon-grade plutonium by fabricating it into MOX fuel and irradiating it in commercial nuclear reactors. During FY 2013, the Administration slowed activities associated with the current plutonium disposition strategy while it conducted an analysis of options to complete the mission more efficiently. The Secretary established a Plutonium Disposition Working Group to undertake this options analysis. The working group has been analyzing the current disposition approach of disposing of surplus weapon-grade plutonium as MOX fuel in light water reactors (LWRs), fast reactor options to dispose of weapon-grade plutonium, and non-reactor based options.

Based upon the ongoing analysis, the Department determined that the MOX fuel approach is significantly more expensive than anticipated, even with consideration of potential contract restructuring and other improvements that have been made to the MOX project. Due to these increases, the MOX fuel approach is not viable within available resources. As a result, the MOX project will be placed in cold stand-by while we further study implementation and costs of options to complete the plutonium disposition mission more efficiently. Upon selecting a preferred option, the Department will commission an independent assessment of the option. This independent assessment will be conducted by an organization external to the Department and its laboratories and will include establishment of life cycle costs, schedules, performance and scope of the selected option.

Also in FY 2013, the Office of Program Integration Analysis and Evaluation within Defense Programs performed an independent cost analysis of the MOX facility life cycle operating costs. They completed their review in April 2013. The review concluded that the independent estimate of steady state operation costs for the MOX facility and the contracting partner estimate are close in aggregate. However, the review presented risks and cost drivers that should be monitored during project execution and start-up. These risks could cause the life cycle costs to increase. Other factors identified that could cause increases were maintenance staffing and the fully burdened cost for full time equivalent (FTE) employees. In addition, extending the number of operating years would also increase the life cycle cost.

In FY 2015, activities associated with oxide production at LANL and SRS will continue, though at a reduced rate because plutonium oxide will still be required regardless of the option selected. Other activities will be conducted in support of placing the MOX facility in cold stand-by. The Department will not meet the MOX production objective as defined in P.L. 107-314, Bob Stump National Defense Authorization Act for Fiscal Year 2003, as most recently amended by P.L. 112-239, the National Defense Authorization Act for Fiscal Year 2013, and has suspended any further transfers of defense plutonium and defense plutonium materials to be processed at the MOX facility in the State of South Carolina. The Department will submit a report to Congress on options for removing an amount of defense plutonium or defense plutonium materials from the State of South Carolina equal to the amount of defense plutonium or defense plutonium materials transferred to the State of South Carolina after April 15, 2002.

**MOX Irradiation, Feedstock, and Transportation (MIFT)**

This activity supports programmatic activities that are not part of the line item construction projects but are necessary to support the overall program to dispose of surplus weapon-grade plutonium as MOX fuel.

**MFFF Other Project Costs Activities (OPC)**

This activity supports all other costs related to a project that are not included in the total estimated cost (TEC). OPCs include, but are not limited to: research and development; conceptual design and conceptual design report; start-up and commissioning costs; NEPA documentation; project data sheet preparation; siting; and permitting requirements. These costs are part of the approved baseline and the total project cost (TPC) of the project.

**MFFF Operating Expenses (O&M)**

This activity supports operations such as hot start-up testing and operations of the MFFF. Costs include planning, contractual and project management support for hot start-up testing and operations. No funds are requested for this activity in FY 2015.

**Waste Solidification Building (WSB) (OPC)**

This activity supports all other costs related to a project that are not included in the total estimated cost (TEC). OPCs include, but are not limited to: research and development; conceptual design and conceptual design report; start-up and commissioning costs; NEPA documentation, project data sheet preparation; siting; and permitting requirements. These costs are part of the approved baseline and the total project cost (TPC) of the project. No funds are requested for this activity in FY 2015.

**Waste Solidification Building (WSB) Operating Expenses (O&M)**

This activity supports operations such as hot start-up testing and operations of the WSB. Costs include planning, contractual and project management support for hot start-up testing and operations. In addition this activity includes the planning, execution, and maintenance of lay-up activities for WSB once completed. No funds are requested for this activity in FY 2015.

**Program Management and Integration (PMI) (Formerly known as Plutonium Disposition and Infrastructure Program (PDIP))**

This activity supports the management and integration of the various components of the FMD program such as program execution planning, integrated program scheduling, risk management, and life cycle management. Additional activities include identification and resolution of issues and management of common program elements such as quality assurance, NEPA compliance, and studies or analyses for plutonium disposition; maintenance and operation of infrastructure required by the FMD projects; and a portion of the site landlord services and infrastructure. No funds are requested for this activity in FY 2015.

**FY 2016-FY 2019 Key Milestones****U.S. Plutonium Disposition**

- Scope and costs will be updated to reflect the decision resulting from the analysis of plutonium disposition options to complete the mission more efficiently.

## U.S. Surplus Fissile Materials Disposition – U.S. Plutonium Disposition

Activities and Explanation of Changes		FY 2014 Enacted	FY 2015 Request	Explanation of Changes FY 2015 vs FY 2014 Enacted
U.S. Plutonium Disposition				
MOX Irradiation, Feedstock, and Transportation				
<ul style="list-style-type: none"><li>Continue at a reduced rate activities associated with the current plutonium disposition strategy while analyzing alternative options:</li><li><b>Feedstock</b>—Funding supports at a reduced rate: (1) continue to disassemble nuclear weapon pits and convert the resulting plutonium metal into an oxide form using the LANL ARIES process, and (2) begin processing of existing plutonium metals and oxides in the H-Canyon and HB Line at Savannah River Site as part of the campaign to process up to 3.7 MT of plutonium material.</li><li><b>Transportation</b>—Funding supports the development, certification, procurement, and maintenance of containers to transport surplus plutonium for disposition. Procure containers for shipping surplus plutonium as necessary.</li></ul>	<ul style="list-style-type: none"><li>Continue at a reduced rate to disassemble nuclear weapon pits and convert the resulting plutonium metal into an oxide form using the LANL ARIES process as part of the 2 MT campaign.</li><li>Continue processing of existing plutonium metals and oxides in the H-Canyon and HB Line at Savannah River Site as part of the 3.7 MT campaign.</li><li>Continue to provide storage, surveillance, and packaging capabilities for surplus pits and plutonium at Pantex.</li></ul>	<p><b>FY 2016-FY 2019</b></p> <ul style="list-style-type: none"><li>Scope and costs will be updated to reflect the decision resulting from the analysis of plutonium disposition options to complete the mission more efficiently</li></ul>	<ul style="list-style-type: none"><li>The overall decrease is mainly due to support the decision of continuing plutonium oxide production at a reduced rate while the Department completes the analysis of the plutonium disposition options.</li></ul>	
MFFF Other Project Cost Activities (OPC)				
<ul style="list-style-type: none"><li>Continue construction activities at a reduced rate while analyzing alternative plutonium disposition options.</li><li>During the 3<sup>rd</sup> Qtr of FY 2014, the MFFF will be placed in cold stand-by.</li></ul>	<ul style="list-style-type: none"><li>Continue management oversight and licensing activities in support of maintaining the project in cold stand-by.</li></ul>	<p><b>FY 2016-FY 2019</b></p> <ul style="list-style-type: none"><li>Scope and costs will be updated in the out years to reflect the decision resulting from the analysis of options to complete the mission more efficiently.</li></ul>	<ul style="list-style-type: none"><li>The decrease reflects the decision to place the project in cold stand-by.</li></ul>	
Waste Solidification Building (WSB) (OPC)				
<ul style="list-style-type: none"><li>Provide OPC support as needed to support facility construction activities.</li></ul>	<ul style="list-style-type: none"><li>Complete system and component testing; finalize operations, lay-up, and maintenance procedures; and prepare Documented Safety Analysis using</li></ul>	<ul style="list-style-type: none"><li>The decrease reflects the use of uncosted balances while the Department completes the analysis of the plutonium disposition options.</li></ul>		



FY 2014 Enacted	FY 2015 Request	Explanation of Changes FY 2015 vs FY 2014 Enacted
<p>uncosted balances.</p> <p><b>FY 2016-FY 2019</b></p> <ul style="list-style-type: none"> <li>NONE – Project complete in FY 2015.</li> </ul>		
<p><b>Waste Solidification Building (WSB) Operating Expenses (O&amp;M)</b></p> <ul style="list-style-type: none"> <li>Continue the following activities at the minimal required level with prior year balances: maintain proper storage requirements for equipment in the process building by operating the main HVAC units; perform preventive maintenance and repair of equipment as needed; and maintain support from external organizations.</li> </ul> <p><b>FY 2016-FY 2019</b></p> <ul style="list-style-type: none"> <li>Scope and costs will be updated in the out years to reflect the decision resulting from the analysis of options to complete the mission more efficiently.</li> </ul>		
<p><b>Plutonium Disposition and Infrastructure Program/Program Management and Integration (PMI)</b></p> <ul style="list-style-type: none"> <li>Continue, at reduced rate, with activities associated with the current plutonium disposition strategy while analyzing alternative options:</li> <li>Funding will support the continuation of the studies and analyses required to support the evaluation and selection of an alternative plutonium disposition strategy. Funding will also support the ongoing maintenance of critical programmatic documents including the Program Execution Plan, integrated schedules, performance measures, NEPA documentation, memoranda of agreement, and interface control documents; minimal required infrastructure and erosion control maintenance required to comply with safety and environmental standards; and DNN's portion of the SRS-wide common infrastructure maintenance activities including site roads, bridges, barricades, and utility distribution systems.</li> </ul> <p><b>FY 2016-FY 2019</b></p> <ul style="list-style-type: none"> <li>Scope and costs will be updated in the out years to reflect the decision resulting from the analysis of options to complete the mission more efficiently.</li> </ul>		
<ul style="list-style-type: none"> <li>Funding will support the ongoing maintenance of critical programmatic documents including the Program Execution Plan, integrated schedules, performance measures, NEPA documentation, memoranda of agreement, and interface control documents; minimal required infrastructure and erosion control maintenance required to comply with safety and environmental standards; and DNN's portion of the SRS-wide common infrastructure maintenance activities including site roads, bridges, barricades, and utility distribution systems.</li> </ul>		<ul style="list-style-type: none"> <li>The decrease reflects the use of prior-year carry over balances.</li> </ul>

**Fissile Materials Disposition  
U.S. Uranium Disposition**

**Description**

This funding supports the disposition of surplus U.S. highly enriched uranium (HEU) by down-blending it to low-enriched uranium (LEU). Several disposition activities are on-going and additional projects are being considered as HEU becomes available from planned weapon dismantlements.

Over the past decade, the National Nuclear Security Administration's (NNSA) surplus U.S. HEU disposition program has eliminated more than 143 metric tons of weapons-usable HEU by down-blending it to LEU for use in power and research reactors in the U.S. and abroad. The program has substantially reduced holdings of fissile materials throughout the Department of Energy complex, rid the world of more than 5,500 weapons worth of unneeded bomb material, helped reduce civil use of HEU worldwide, and made a significant contribution to electricity supplies. The program has also been able to off-set appropriations for the program by using bartering to pay for commercial down-blending services, and funds received from the sale of LEU are returned to the U.S. Treasury. The future focus is to continue progress in down-blending HEU to meet nonproliferation objectives, the use of derived LEU in a manner that does not adversely impact the commercial nuclear fuel markets, and the development of future projects from unallocated HEU inventories.

The original 12.1 MT for the MOX Backup LEU Inventory Project was completed in December 2013. In February 2013, an additional 5 MT became available and was added to this project. The 5 MT extension is scheduled to complete in FY 2015. NNSA is pursuing a new offering for down-blending 14 MT of surplus HEU to commence in FY 2015.

**FY 2016-FY 2019 Key Milestones**

- Continue to down-blend surplus HEU that is currently unallocated in order to meet nonproliferation objectives.

## U.S. Uranium Disposition

Activities and Explanation of Changes		
FY 2014 Enacted	FY 2015 Request	Explanation of Changes FY 2015 vs FY 2014 Enacted
U.S. Uranium Disposition		
<ul style="list-style-type: none"><li>Continue research reactor fuel project and new multi-year disposition project; complete the 12.1MT MOX Backup LEU Inventory Project; and commence the 5 MT of the MOX Backup LEU Inventory Project.</li></ul>	<ul style="list-style-type: none"><li>Continue to down-blend HEU for research reactor needs in support of reactor conversion efforts.</li><li>Complete the 5 MT of the MOX Backup LEU Inventory Project.</li><li>Support the de-inventory of Area 5 at Y-12, including removal of LWBR fuel rods.</li><li>Support production area operations for material processing and packaging of surplus HEU.</li><li>Perform services necessary to provide suitable and appropriate certified Type B radioactive material shipping packages for HEU disposition programs.</li><li>Prepare unallocated surplus HEU material for future disposition.</li></ul>	<ul style="list-style-type: none"><li>No funding change.</li></ul>
FY 2016-FY 2019		
	<ul style="list-style-type: none"><li>September 2016-2019 - Continue to down-blend surplus HEU in order to meet nonproliferation objectives.</li><li>Continue to down-blend surplus HEU that is currently unallocated in order to meet nonproliferation objectives.</li></ul>	

**FY 2016-FY 2019**

- September 2016-2019 - Continue to down-blend surplus HEU in order to meet nonproliferation objectives.
- Continue to down-blend surplus HEU that is currently unallocated in order to meet nonproliferation objectives.

## **Fissile Materials Disposition Construction**

### **Description**

The program goal is to dispose of surplus Russian weapon-grade plutonium and surplus U.S. weapon-grade plutonium and highly enriched uranium. To dispose of U.S. plutonium, the program has been constructing the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF), which would enable the Department to dispose of plutonium by fabricating it into MOX fuel and irradiating it in commercial nuclear reactors.

During FY 2013, the Administration slowed activities associated with the current plutonium disposition strategy while it conducted an analysis of options to complete the mission more efficiently. The Secretary established a Plutonium Disposition Working Group in June 2013 to undertake this options analysis. The working group has been analyzing the current disposition approach of disposing of surplus weapon-grade plutonium as MOX fuel in light water reactors (LWRs), fast reactor options to dispose of weapon-grade plutonium, and non-reactor based options.

In the course of this analysis, it was determined that the MOX fuel approach is significantly more expensive than anticipated, even with consideration of potential contract restructuring and other improvements that have been made to the MOX project. In FY 2012, the contracting partner submitted a baseline change proposal (BCP) for the MFFF project that would increase the TPC to \$7.7 billion with a completion date of November 2019. An independent cost estimate (ICE) was initiated in September 2012 to validate the BCP submitted by the contracting partner. Because the contracting partner BCP was based on an assumed annual funding profile of approximately \$600 million beginning in FY 2014, the ICE was suspended in April 2013. However, the analysis determined that the cost to construct the MFFF would be significantly higher than the BCP and take longer to complete. As a result of the cost increase and the current budget environment, the MOX project will be placed in cold stand-by while we further study implementation and costs of options to complete the plutonium disposition mission more efficiently. Furthermore, the Department will conduct a root cause analysis on the cost increases of the project as directed in P.L. 113-76, Consolidated Appropriations Act 2014.

Due to the magnitude of the changes in the FY 2015 and out year funding profile, a detailed MOX cold stand-by plan will be developed, approved and implemented in accordance with the DOE Project Management and Contract processes. This plan will discuss in more detail the impact of placing the facility in cold stand-by.

The Acquisition Executive approved the WSB BCP in December 2012 with a TPC of \$414 million and a completion date of August 2015. The project rebaseline includes NNSA contingency for subcontractor Request for Equitable Adjustments (REA). Subcontractor REA claims are expected to impact project contingency. Although the analysis is not yet complete, sufficient information exists to determine that the first receipt of liquids from the MFFF will be at least five years after completion of the WSB project. Given this information, a number of activities (primarily associated with operational readiness reviews) were identified that are unnecessary during lay-up in light of the potential length of time until operation as a radiological facility. Consequently, a letter of direction was provided to the WSB contracting partner in December 2013 to modify completion criteria for the project and to place the facility in a lay-up condition following Critical Decision 4 while the Department concludes the analysis of options. This budget requests \$5 million in TEC funds but no OPC funds for FY 2015. The contracting partner would conduct system and component testing but would not perform integrated system testing, minimizing the need for additional OPC funds. The largest uncertainty to the final project cost is the resolution of outstanding REA's and associated legal costs.

### **99-D-141-02, Waste Solidification Building (WSB)**

This activity supports the design, long-lead equipment procurement, site preparation, and construction of the WSB.

### **99-D-143, MOX Fuel Fabrication Facility (MFFF)**

This activity supports the design, long-lead equipment procurement, site preparation, and construction of the MFFF.

**FY 2016-FY 2019 Key Milestones**

**U.S. Construction**

- Scope and costs will be updated in the out years to reflect the decision resulting from the analysis of the plutonium disposition options to complete the mission more efficiently.

## Activities and Explanation of Changes

## Construction

FY 2014 Enacted	FY 2015 Request	Explanation of Changes FY 2015 vs FY 2014 Enacted
<b>Construction</b>		
<b>99-D-141-02, Waste Solidification Building (WSB)</b>		
<ul style="list-style-type: none"> <li>Complete remaining fixed-price subcontractor construction activities (field work and QA records) with prior year balances.</li> </ul>	<ul style="list-style-type: none"> <li>Complete remaining turnovers of systems and contract closeout.</li> <li>Supports the hotel load for the project team and payment of outstanding Request for Equitable Adjustments (REA). (The majority of the M&amp;O work should be charged to OPC in FY 2015. Substantial uncertainty remains regarding the funding amount that will be needed to settle any subcontractor claims).</li> </ul>	<ul style="list-style-type: none"> <li>The increase will support any outstanding REAs.</li> </ul>
<b>FY 2016-FY 2019</b>		
<ul style="list-style-type: none"> <li>NONE – Project completed in FY 2015.</li> </ul>		
<b>99-D-143, MOX Fuel Fabrication Facility (MFFF)</b>		
<ul style="list-style-type: none"> <li>Continue construction activities at a reduced rate while analyzing alternative plutonium disposition options.</li> <li>Continue minimal HVAC construction, process piping, fire protection, electrical, coatings, and glovebox and process equipment installation.</li> <li>During the 3<sup>rd</sup> Qtr of FY 2014, the MFFF will be placed on cold stand-by.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain minimal activities while the project is in cold stand-by.</li> </ul> <p><b>FY 2016-FY 2019</b></p> <ul style="list-style-type: none"> <li>Scope and costs will be updated in the out years to reflect the decision resulting from the analysis of options to complete the mission more efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>The decrease reflects the decision to place the project in cold stand-by while the Department completes the ongoing analysis.</li> </ul>

## Fissile Materials Disposition Russian Surplus Fissile Materials Disposition

### Description

Under the amended U.S.-Russian Plutonium Management and Disposition Agreement (PMDA) each side is committed to dispose of at least 34 MT of surplus weapon-grade plutonium. The PMDA commits the U.S. to provide \$400,000,000, subject to the availability of appropriated funds and the U.S. budgetary review process, to assist Russia in its plutonium disposition program. Russia will contribute over \$2 billion necessary to complete its program.

The Administration remains firmly committed to the overarching goals of the plutonium disposition program to: 1) dispose of excess U.S. plutonium; and 2) achieve Russian disposition of equal quantities of plutonium. The Administration recognizes the importance of the U.S.-Russia Plutonium Management and Disposition Agreement (PMDA), whereby each side committed to dispose of at least 34 MT of weapon-grade plutonium. The decision to place the MFFF in cold stand-by does not diminish this commitment. The Administration will continue to work with Russia and the IAEA to fulfill our obligations under the PMDA.

Russia has made significant progress towards establishing its plutonium disposition capability based on irradiating MOX fuel in its fast reactors. The construction work at the BN-800 reactor at the Beloyarsk nuclear power plant is completed. Fuel loading began in February and will continue over the next two months. It is the latest step in a sequence that began in December 2013, when the reactor was filled with its sodium coolant and received the necessary permits from the Russian nuclear regulator Rostechnadzor to begin the fuel loading and pre-startup tests. The reactor is expected to reach first criticality in April 2014. In addition Rosatom has established a working group chaired by its lead fuel manufacturing company, TVEL, to manage the design and construction of its MOX Fuel Fabrication Facility at the Mining Chemical Combine (MCC) in Zheleznogorsk. Equipment fabrication and installation work at the MOX facility commenced in 2012 and the facility is scheduled to begin operations in the 2015 timeframe.

In the meantime, NNSA continues to work with Russia to establish a contractual agreement to provide US assistance under the PMDA. In May 2012 Rosatom, the Russian executive agent to the PMDA, provided NNSA with a high-level list of milestones indicating the general areas where it would request U.S. assistance. NNSA and Rosatom have since been refining the list of milestones and exchanging comments on a draft Statement of Work for an initial contract to begin specific Russian work under the PMDA funded with U.S. assistance. Formal negotiations on the initial contract began in November 2013 and in FY 2014, Oak Ridge National Laboratory (ORNL) anticipates completing negotiations and awarding an initial contract with the Russian integrating contractor (VNIIA) using prior year funds. Under the terms of the contract, Russia will be required through its PMDA integrating contractor to develop and complete detailed Russian plutonium disposition program and implementation plans; to negotiate and complete an agreement with the IAEA for a verification regime to provide independent international confirmation that Russia is disposing of its plutonium in accordance with the conditions in the PMDA; to conduct limited research and development of equipment in support of the implementation of the verification regime in Russian, providing such equipment is not already available through the IAEA; and to negotiate and complete a Cooperative Agreement to authorize and fund the remaining Russian work under the U.S. PMDA assistance obligation. Work under this initial contract will be conducted in the FY 2014 - FY 2015 timeframe.

During FY 2015, ORNL, Pacific Northwest National Laboratory (PNNL), and other laboratories and contracting partners will support the implementation of the PMDA by assisting in the oversight of contracts in Russia; verifying completion of contract deliverables in Russia; providing technical and policy analyses; provide technical support for negotiations with the Russians and the IAEA by way of technical analysis of verification and reactor operations issue raise in negotiation with Russian and the IAEA as well as technical support of delegations in meetings with the IAEA and Russia; and completion of a U.S. agreement with the IAEA for a verification regime to provide independent international confirmation that the US is disposing of its plutonium in accordance with the conditions in the PMDA.

In addition, this program will be the focal point within DNN on the development of international plutonium management strategies with countries other than Russia, by developing bi-lateral and multi-lateral working arrangements in which countries work together at a technical level to support efforts to manage plutonium inventories in a way that minimizes the stockpiles of excess plutonium and maximizes the security and protection of the material.

**Funds Spent in U.S.**

This activity supports the U.S. technical and oversight support of PMDA implementation in Russia and other objectives for the International Program.

**Funds Spent Internationally**

This activity supports international technical and oversight support of PMDA implementation in Russia and other objectives for the International Program.

**FY 2016-FY 2019 Key Milestones**

Funds Spent in U.S.

- Verify completion of deliverables required by U.S.-Russian contracts, as necessary.

Funds Spent Internationally

- Sign a Cooperative Agreement between NNSA and the Russian integrating contractor to summarize remaining work to be accomplished with U.S. PMDA assistance and authorize work in the 2017 – 2019 timeframe.



## Russian Surplus Fissile Materials Disposition

Activities and Explanation of Changes		
FY 2014 Enacted	FY 2015 Request	Explanation of Changes FY 2015 vs FY 2014 Enacted
Russian Surplus Fissile Materials Disposition		
Funds Spent in U.S.		
<ul style="list-style-type: none"><li>Uncosted balances will support the management of Russian contracts and provide technical oversight for planning and execution of the Russian plutonium disposition program.</li></ul>	<ul style="list-style-type: none"><li>Uncosted balances will support the management of Russian contracts; provide technical oversight for planning and execution of the Russian plutonium disposition program, and implementing plutonium management strategies with international partners.</li></ul>	<ul style="list-style-type: none"><li>No Funding Change.</li></ul>
FY 2016-FY 2019		
	<ul style="list-style-type: none"><li>September 2016-2019 - Verify completion of deliverables required by U.S.-Russian contracts, as necessary.</li></ul>	
Russian Surplus Fissile Materials Disposition		
Funds Spent in Russia		
<ul style="list-style-type: none"><li>Uncosted balances will support plutonium disposition implementation efforts in Russia funded from prior year funds as part of the \$400 million in U.S. assistance under the PMDA.</li></ul>	<ul style="list-style-type: none"><li>Uncosted balances will support plutonium disposition implementation efforts in Russia funded from prior year funds as part of the \$400 million in U.S. assistance under the PMDA.</li></ul>	<ul style="list-style-type: none"><li>No Funding Change.</li></ul>
FY 2016-FY 2019		
	<ul style="list-style-type: none"><li>September 2016 - Sign a Cooperative Agreement between NNSA and the Russian integrating contractor to summarize remaining work to be accomplished with U.S. PMDA assistance and authorize work in the 2017 – 2019 timeframe.</li></ul>	

### Fissile Materials Disposition Performance Measures

In accordance with the GPRA Modernization Act of 2010, the Department sets targets for, and tracks progress toward, achieving performance goals for each program. For more information, refer to the Department's FY 2013 Annual Performance Report.

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
<b>Mixed Oxide (MOX) Fuel Fabrication Facility</b> - Cumulative percentage of the design, construction, and cold start-up activities completed for the Mixed Oxide (MOX) Fuel Fabrication Facility.							
Target	81% completed	TBD	TBD	TBD	TBD	TBD	TBD
Result	<b>Not Met</b> - 60						
Endpoint Target	TBD						

Note: The FY 2013 result of 60% is based on the current approved baseline, which is no longer valid, with a TPC of \$4.8 billion and a completion date of October 2016. Due to preliminary cost increases and the current budget environment, the MFF project will be placed in cold stand-by in FY 2014 while the Department completes the ongoing analysis. Performance measure targets will be adjusted to reflect the decision of the path forward for plutonium disposition.

<b>U.S. Highly Enriched Uranium (HEU) Down-blended</b> - Cumulative amount of surplus U.S. highly enriched uranium (HEU) down-blended or shipped for down-blending.							
Target	143 MT	146 MT	148 MT	150 MT	152 MT	154 MT	156 MT
Result	<b>Exceeded</b> - 143.8						
Endpoint Target							

By the end of FY 2030, complete disposition of 186 MT of surplus HEU. The overall amount of HEU available for down-blending and the rate at which it will be down-blended is dependent upon decisions regarding the U.S. nuclear weapons stockpile, the pace of warhead dismantlement and receipt of HEU from research reactors, as well as other considerations, such as decisions on processing of additional HEU through H-Canyon, disposition paths for weapons containing HEU, etc.

Note: FY 2013 – FY 2018 annual targets were revised in FY 2012. The change in the target reflects the significant rise in productivity under the TVA BLEU, AFS and MOX/LEU inventory projects. The increase was factored into current and future years to maintain the integrity of the target performance measurement. Additional material was identified and added to the total amount of HEU to be dispositioned. The previous end point date of 2040 for HEU disposition has been adjusted to 2030 to reflect a more accurate representation of completion. The previous end point was based on a preliminary understanding of dismantlement and down-blending schedules. Since then, FMD has confirmed that HEU will be down-blended at a rate of 2-3 MT/year, resulting in an end point date of approximately 2030 to complete the down-blending of 186 MT of HEU.

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
<b>U.S. Plutonium Disposition (LANL)</b> - Cumulative kilograms of plutonium metal converted to oxide at Los Alamos National Laboratory.							
Target	592 kg	692 kg	792 kg	892 kg	992 kg	1,092 kg	1,192 kg
Result	<b>Met - 592</b>						
Endpoint Target	TBD						

Note: NNSA changed the 2013 target presented in the FY 2014 Budget Request from 675 kg to 592 kg. Due to preliminary cost increases and the current budget environment, the Administration is continuing an ongoing analysis to determine whether there are options to complete the mission more efficiently. As a result all activities associated with the current strategy will continue at a reduced rate while the Department completes the ongoing analysis. Performance measure targets will be adjusted to reflect the decision of the path forward for plutonium disposition.

<b>U.S. Plutonium Disposition (H-Canyon)</b> - Cumulative kilograms of plutonium converted to oxide at SR H-Canyon.							
Target	N/A	180 kg	1,145 kg	2,145 kg	3,145 kg	3,700 kg	N/A
Result							
Endpoint Target	By the end of FY 2018, complete operations for 3.7 MT of plutonium converted to oxide at Savannah River Site.						

<b>WSB</b> - Cumulative percentage of the design, construction, and cold start-up activities completed for the Waste Solidification Building (WSB).							
Target	87% completed	91% completed	100% complete	N/A	N/A	N/A	N/A
Result	Exceeded - 90%						
Endpoint Target	TBD						

Note: Due to preliminary cost increases and the current budget environment, the Administration is continuing an ongoing analysis to determine whether there are options to complete the mission more efficiently. As a result, the scope of activities remaining to complete the WSB project may be modified to reflect the change in program direction. Performance measure targets might be adjusted to reflect the decision of the path forward for plutonium disposition.

**Fissile Materials Disposition  
Capital Summary**

(Dollars in Thousands)

Total	Prior Years	FY 2013 Current	FY 2014 Enacted	FY 2014 Current	FY 2015 Current	FY 2015 vs FY 2014
18,471	9,536	1,195	1,221	1,221	1,248	+27
<b>18,471</b>	<b>9,536</b>	<b>1,195</b>	<b>1,221</b>	<b>1,221</b>	<b>1,248</b>	<b>+27</b>
18,471	9,536	1,195	1,221	1,221	1,248	27
<b>18,471</b>	<b>9,536</b>	<b>1,195</b>	<b>1,221</b>	<b>1,221</b>	<b>1,248</b>	<b>+27</b>
<b>18,471</b>	<b>9,536</b>	<b>1,195</b>	<b>1,221</b>	<b>1,221</b>	<b>1,248</b>	<b>+27</b>

**Outyears for Fissile Materials Disposition**

(Dollars in Thousands)				
FY 2016 Request	FY 2017 Request	FY 2018 Request	FY 2019 Request	
1,275	1,303	1,332	1,361	
<b>1,275</b>	<b>1,303</b>	<b>1,332</b>	<b>1,361</b>	
1,275	1,303	1,332	1,361	
<b>1,275</b>	<b>1,303</b>	<b>1,332</b>	<b>1,361</b>	
<b>1,275</b>	<b>1,303</b>	<b>1,332</b>	<b>1,361</b>	

**Capital Operating Expenses Summary (including (Major Items of Equipment (MIE)**

Capital Equipment >\$500K (including MIE)

**Total, Capital Operating Expenses**

**Capital Equipment > \$500K (including MIE)**

Total Non-MIE Capital Equipment (>\$500K)

**Total, Capital Equipment (including MIE)**

**Total, Capital Summary**

**Capital Operating Expenses Summary (including (Major Items of Equipment (MIE)**

Capital Equipment >\$500K (including MIE)

**Total, Capital Operating Expenses**

**Capital Equipment > \$500K (including MIE)**

Total Non-MIE Capital Equipment (>\$500K)

**Total, Capital Equipment (including MIE)**

**Total, Capital Summary**

**Fissile Materials Disposition  
Construction Projects Summary**

(Dollars in Thousands)						
	Total	Prior Years	FY 2013 Current	FY 2014 Current	FY 2015 Current	FY 2015 vs FY 2014
<b>99-D-141-02, Waste Solidification Building, (WSB)</b>						
Total Estimated Cost (TEC)	297,862	244,332	48,404	0	5,126	+5,126
Other Project Cost (OPC)	103,724	57,926	25,798	20,000	0	-20,000
<b>Total, 99-D-141-02, Waste Solidification Building, (WSB)</b>	<b>401,586</b>	<b>302,258</b>	<b>74,202</b>	<b>20,000</b>	<b>5,126</b>	<b>-14,874</b>
<b>99-D-143, MOX Fuel Fabrication Facility (MFFF)</b>						
Total Estimated Cost (TEC)	6,391,019	3,455,787	400,990	402,743	196,000	-206,743
Other Project Cost (OPC)	1,283,655	230,333	40,000	40,000	25,000	-15,000
<b>Total, 99-D-143, MOX Fuel Fabrication Facility (MFFF)</b>	<b>7,674,674</b>	<b>3,686,120</b>	<b>440,990</b>	<b>442,743</b>	<b>221,000</b>	<b>-221,743</b>
<b>Total All Construction Projects</b>						
Total Estimated Cost (TEC)	6,688,881	3,700,119	449,394	402,743	201,126	-201,617
Other Project Cost (OPC)	1,387,379	288,259	65,798	60,000	25,000	-35,000
<b>Total Project Cost (TPC) All Construction Projects</b>	<b>8,076,260</b>	<b>3,988,378</b>	<b>515,192</b>	<b>462,743</b>	<b>226,126</b>	<b>-236,617</b>

**Outyears to Completion for Fissile Materials Disposition <sup>a</sup>**

(Dollars in Thousands)					
	FY 2016 Request	FY 2017 Request	FY 2018 Request	FY 2019 Request	Outyears to Completion
<b>99-D-143, MOX Fuel Fabrication Facility (MFF)</b>					
Total Estimated Cost (TEC)	196,000	196,000	196,000	196,000	TBD
Other Project Cost (OPC)	25,000	25,000	25,000	25,000	TBD
<b>Total, 99-D-143, MOX Fuel Fabrication Facility (MFF)</b>	<b>221,000</b>	<b>221,000</b>	<b>221,000</b>	<b>221,000</b>	<b>TBD</b>
<b>Total All Construction Projects</b>					
Total Estimated Cost (TEC)	196,000	196,000	196,000	196,000	TBD
Other Project Cost (OPC)	25,000	25,000	25,000	25,000	TBD
<b>Total Project Cost (TPC) All Construction Projects</b>	<b>221,000</b>	<b>221,000</b>	<b>221,000</b>	<b>221,000</b>	<b>TBD</b>

<sup>a</sup> Schedules, dates and costs will be updated to reflect the decision on the path forward for plutonium disposition.

**99-D-143, Mixed Oxide (MOX) Fuel Fabrication Facility,  
Savannah River Site (SRS), Aiken, South Carolina  
Project is for Design and Construction**

**1. Significant Changes**

The most recent Department of Energy (DOE) Order 413.3B approved Critical Decision (CD) is CD-3, Start of Construction, and was approved on April 11, 2007, with a Total Project Cost (TPC) of \$4,814,329 and CD-4 of Fiscal Year (FY) 2016. Construction began on August 1, 2007, as directed by the Revised Continuing Resolution, 2007, Public Law 110-5. The latest approved baseline change was on December 17, 2008, with a TPC of \$4,857,129 and CD-4 of FY 2017.

A Federal Project Director, certified at the appropriate level is assigned to this project. This Project Data Sheet (PDS) does not include a new start for the budget year.

This PDS is an update of the FY 2014 PDS. Significant changes include the following:

In FY 2012, the contracting partner submitted a Baseline Change Proposal (BCP) for the MFFF project that would increase the TPC to \$7.7 billion with a completion date of November 2019. An independent cost estimate (ICE) was initiated in September 2012 to begin validating the BCP submitted by the contracting partner. Because the contracting partner BCP was based on an assumed funding profile of approximately \$600 million annually beginning in FY 2014, the ICE was suspended in April 2013. Analysis of the suspended ICE along with a lower outyear annual funding profile resulted in significantly higher costs than the contracting partner submitted BCP and a later completion date. As a result of the MFFF project increases along with increased lifecycle costs, the MFFF project will be placed in cold stand-by while the Department develops a detailed implementation plan for more efficient plutonium disposition options. Furthermore, the Department will conduct a root cause analysis on the cost increases of the project as directed in P.L. 113-76, Consolidated Appropriations Act, 2014.

During FY 2013, the Administration slowed activities associated with the current plutonium disposition strategy while it conducted an analysis of options to complete the mission more efficiently. In the course of this analysis, it was determined that the MOX fuel approach is significantly more expensive than anticipated, even with consideration of potential contract restructuring and other improvements that have been made to the MOX project. Due to increases, with a total lifecycle cost of approximately \$30 billion the MOX fuel approach is not viable within the available resources.

During the second half of FY 2013, the focus was to slow down the construction and procurement activities while realigning the management systems, processes, and procedures in preparation for implementation of the path forward for the plutonium disposition program. Construction was slowed to one 10 hour shift four days a week, focusing on critical path activities. Existing contracts were slowed where possible and the only new procurements awarded were those necessary to support the project slowdown. Federal and contracting partner teams have been restructured with a functional alignment approach. The functional alignment approach divides the project into more manageable sets of scope and provides focused project managers for each area. Due to the uncertainty of the project moving forward, personnel turnover has continued to increase due to voluntary separations, scope evolution, the issuance of WARN Act notifications, and layoffs. At the beginning of April 2013, there were 2,271 contracting partner personnel on board and by the end of December 2013 this number has been reduced to 1,523. There were 368 personnel laid off and 451 personnel left voluntarily or due to scope evolution.

Due to the magnitude of the changes in the FY 2015 and out year funding profile, a detailed cold stand-by plan for the MFFF project will be developed, approved, and implemented in accordance with the DOE Project Management and Contract processes. This plan will present in detail the impact of placing the project in cold stand-by. NNSA will engage with the contracting partner to begin development and implementation of this plan in March 2014.

**2. Design, Construction, and D&D Schedule**

	(fiscal quarter or date)							
	CD-0	CD-1	Design Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 2000	N/A	2QFY1999	4QFY2001	N/A	1QFY2002	4QFY2005	N/A	N/A
FY 2001	N/A	2QFY1999	3QFY2002	N/A	4QFY2002	1QFY2006	N/A	N/A
FY 2002	N/A	2QFY1999	4QFY2002	N/A	2QFY2003	1QFY2007	N/A	N/A
FY 2003	N/A	2QFY1999	4QFY2003	N/A	2QFY2004	4QFY2007	N/A	N/A
FY 2004	N/A	2QFY1999	1QFY2004	N/A	2QFY2004	4QFY2007	N/A	N/A
FY 2005	N/A	2QFY1999	3QFY2004	N/A	3QFY2005	2QFY2009	N/A	N/A
FY 2006	N/A	2QFY1999	1QFY2005	N/A	3QFY2005	TBD	N/A	N/A
FY 2007	N/A	2QFY1999	4QFY2009	N/A	2QFY2007	4QFY2014	N/A	N/A
FY 2008	1QFY1997	2QFY1999	2QFY2011	2QFY2007	2QFY2007	4QFY2013	N/A	N/A
FY 2009	1QFY1997	03/22/1999	2QFY2013 <sup>a</sup>	04/11/2007	04/11/2007 <sup>b</sup>	4QFY2016	N/A	N/A
FY 2010	1QFY1997	03/22/1999	2QFY2013	04/11/2007	04/11/2007	1QFY2017	N/A	N/A
FY 2011	1QFY1997	03/22/1999	2QFY2013	04/11/2007	04/11/2007	1QFY2017	N/A	N/A
FY 2012	1QFY1997	03/22/1999	2QFY2013	04/11/2007	04/11/2007	1QFY2017	N/A	N/A
FY 2013	1QFY1997	03/22/1999	2QFY2013	04/11/2007	04/11/2007	1QFY2017	N/A	N/A
FY 2014	1QFY1997	3/22/1999	4QFY2014	04/11/2007	04/11/2007	TBD <sup>c</sup>	N/A	N/A
FY 2015	1QFY1997	3/22/1999	TBD	04/11/2007	04/11/2007	TBD <sup>c</sup>	N/A	N/A

CD-0 – Approve Mission Need

CD-1 – Approve Alternative Selection and Cost Range

CD-2 – Approve Performance Baseline

CD-3 – Approve Start of Construction

CD-4 – Approve Start of Operations or Project Closeout

D&amp;D Start – Start of Demolition &amp; Decontamination (D&amp;D) work

D&amp;D Complete – Completion of D&amp;D work

	(fiscal quarter or date)			
	Nuclear Regulatory Commission (NRC) Construction Authorization	CD 2A/3A	Performance Baseline Validation	CD 2B/3B
FY 2005	03/30/2005	09/30/2005	N/A	N/A
FY 2006	N/A	N/A	07/07/2006	N/A
FY 2007	N/A	N/A	N/A	04/06/2006

CD 2A/3A - Approval to start Site Preparation

CD 2B/3B - Approval to begin long lead procurements (“trapped” tanks, steel embeds, reinforcing steel, barrier doors)

<sup>a</sup> Facility, process, and equipment design have been completed.<sup>b</sup> The Department approved CD-3 (Start of Construction) on April 11, 2007, however, as directed by the Revised Continuing Resolution, 2007, Public Law 110-5, construction began on August 1, 2007.<sup>c</sup> Schedules, dates, and costs will be updated to reflect the decision on the path forward for plutonium disposition.



### 3. Baseline and Validation Status

	(fiscal quarter or date)						
	TEC, Design	TEC, Construction	TEC, Total	OPC, Except D&D	OPC, D&D	OPC, Total	TPC
FY 2000	TBD	TBD	383,186	0	N/A	TBD	N/A
FY 2001	TBD	TBD	383,186	0	N/A	TBD	N/A
FY 2002	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2003	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2004	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2005	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2006	TBD	TBD	TBD	TBD	N/A	TBD	N/A
FY 2007	TBD	TBD	3,277,984	354,108	N/A	354,108	3,632,092
FY 2008	TBD	TBD	3,868,628	830,701	N/A	830,701	4,699,329
FY 2009	TBD	TBD	3,938,628	875,701	N/A	875,701	4,814,329
FY 2010	TBD	TBD	3,975,828	881,301	N/A	881,301	4,857,129
FY 2011	960,925	3,014,903	3,975,828	881,301	N/A	881,301	4,857,129
FY 2012	978,073	2,997,755	3,975,828	881,301	N/A	881,301	4,857,129
FY 2013	994,073	2,981,755	3,975,828	881,301	N/A	881,301	4,857,129
FY 2014	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2015	TBD <sup>a</sup>	TBD <sup>a</sup>	TBD <sup>a</sup>	TBD <sup>a</sup>	N/A	TBD <sup>a</sup>	TBD <sup>a</sup>

### 4. Project Description, Justification, and Scope

#### Mission Need

The overall project mission need is to dispose of at least 34 metric tons (MT) of surplus weapon-grade plutonium in accordance with the amended *U.S.-Russia Plutonium Management and Disposition Agreement*. The MOX Fuel Fabrication Facility would accomplish this by converting the surplus material into mixed oxide fuel that could subsequently be irradiated in power producing reactors in the United States. Once irradiated and converted into spent fuel, the material could no longer be readily used for nuclear weapons.

#### Scope and Justification:

The U.S. MOX Fuel Fabrication Facility (MFFF) at the SRS would combine surplus weapon-grade plutonium oxide with depleted uranium oxide to form MOX fuel assemblies to be used as fuel for U.S. commercial nuclear reactors. The nominal design life of the facility would be 40 years; however, it would take approximately 15 years to complete the 34 MT mission. After completing its mission, the facility could be deactivated, decontaminated, and decommissioned in approximately three to four years.

The MOX facility has been designed with the capacity to receive and process 3.5 MT of plutonium oxide per year. The plutonium oxide would come from the disassembly and conversion of weapon pits and from other DOE inventories of weapon-grade plutonium. The MOX facility would have the capacity to store sufficient plutonium oxide for two years of operations.

The MOX facility would be approximately 441,000 square feet in size and provide all of the material processing and fabrication operations needed to produce MOX fuel. The MOX facility operations would include: aqueous polishing (AP) to purify the plutonium oxide; blending and milling; pelletizing; sintering; grinding; loading fuel rods; bundling fuel assemblies; and storing feed material, pellets, and fuel assemblies. The facility would also include a laboratory and space for material sampling and use by a monitoring and inspection team. Adjacent to the MOX process areas is the secure shipping and receiving area to support material receipt, utilities, and technical support.

<sup>a</sup> Schedules, dates, and costs will be updated to reflect the decision resulting from the assessment in the out years.



The design of the MFFF is based on technologies, processes, and facilities that have been successfully operating in France for decades, specifically AREVA's MELOX Services and La Hague facilities. The facility has been designed to meet U.S. conventions, codes, standards, and regulatory requirements, and would be licensed by the NRC.

#### **FY 2013 Project Status**

In FY 2013, the MFFF structural construction package was completed to include the primary exterior wall and MFFF roof. Seismic-construction support design, closure of work packages, material/equipment management, records/control/storage, NNSA oversight support (such as construction and vendor oversight), regulatory affairs (such as interactions with NRC), and utilities and maintenance of completed buildings were continued. In addition, while NNSA was conducting an analysis of options, the following activities were slowed down during the second half of the fiscal year: HVAC construction, process piping (including active gallery piping), fire protection, electrical, coatings, glovebox and equipment (risk reduction) testing, glovebox and process equipment installation, and future commitments.

#### **FY 2014 and FY 2015 Planned Description of Activities**

In FY 2014, the overall scope was focused on advancing completion of the first and second floor of the aqueous processing (AP) area and the first floor of the manufacturing dry process (MP) area to support the overall project critical path based on engineering and glovebox/equipment requirements and procurement activities. Construction activities in the first half of FY 2014 included setting a prefabricated pipe module in the active gallery; installation of dampers, duct and HVAC supports; installation of process pipe and the associated chemical commodity equipment; and installation of electrical equipment and cable trays. Activities in the second half of FY 2014 will focus on transitioning to a cold stand-by mode.

A detailed plan will be developed that will address cold stand-by activities. Some actions, such as reduction of craft, can be done immediately. Other staff reductions will occur after the cold stand-by plan is developed, approved, and appropriate notifications are made.

In FY 2015, the overall scope will continue to support the activities associated with maintaining the MOX project in a cold stand-by mode.

#### **Risk Management**

A revised risk assessment will be conducted in conjunction with the development of the cold stand-by plan. It is anticipated that the largest risks going forward will include the management and closure of contracts, retention of key personnel, and the closure of paperwork such as design documents and work packages.

The project is being conducted in accordance with the project management requirements in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

## 5. Financial Schedule

(dollars in thousands)			
	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
Design			
FY 1999	28,000	9,600	2,545
FY 2000	12,375	30,775	33,512
FY 2001	25,943	25,943	29,938
FY 2002	65,993	65,993	52,513
FY 2003	92,088	92,088	82,022
FY 2004	81,081	81,081	93,457
FY 2005	251,195	251,195	216,801
FY 2006	119,853	119,853	165,618
FY 2007	65,133	65,133	62,342
FY 2008 <sup>a</sup>	56,045	56,045	58,958
FY 2009 <sup>b</sup>	72,509	72,509	68,395
FY 2010	70,987	70,987	65,056
FY 2011	51,134	51,134	50,757
FY 2012	29,094	29,094	34,642
FY 2013	37,000	37,000	24,445
FY 2014 Reprogramming	0	0	0
FY 2014	14,000	14,000	18,000
FY 2015	0	0	6,898
FY 2016	0	0	0
FY 2017	0	0	0
FY 2018	0	0	0
FY 2019	0	0	0
Total, Design	TBD	TBD	TBD
Construction			
FY 2004	279,193	0	0
FY 2005	113,892	44,100	0
FY 2006	97,947	217,469	15,210
FY 2007	197,367	197,367	115,065
FY 2008 <sup>a</sup>	175,676	290,139	209,174
FY 2008 (rescinded PY unobligated balance)	-115,000	0	0
FY 2009 <sup>b</sup>	395,299	395,299	301,323
FY 2010	433,251	433,251	429,326
FY 2011	450,654	450,654	482,330
FY 2012	406,078	406,078	671,212
FY 2013	363,990	363,990	476,204
FY 2014 Reprogramming	59,242	59,242	0
FY 2014	329,500	329,500	327,286

<sup>a</sup> MOX funded within the Nuclear Energy appropriation.<sup>b</sup> MOX funded with the Other Defense Activities appropriation.

(dollars in thousands)			
	Appropriations	Obligations	Costs
FY 2015	196,000	196,000	355,959
FY 2016	196,000	196,000	TBD
FY 2017	196,000	196,000	TBD
FY 2018	196,000	196,000	TBD
FY 2019	196,000	196,000	TBD
Total, Construction	TBD	TBD	TBD
TEC			
FY 1999	28,000	9,600	2,545
FY 2000	12,375	30,775	33,512
FY 2001	25,943	25,943	29,938
FY 2002	65,993	65,993	52,513
FY 2003	92,088	92,088	82,022
FY 2004	360,274	81,081	93,457
FY 2005	365,087	295,295	216,801
FY 2006	217,800	337,322	180,828
FY 2007	262,500	262,500	177,407
FY 2008 <sup>a</sup>	231,721	346,184	268,132
FY 2008 (rescinded PY unobligated balance)	-115,000	0	0
FY 2009 <sup>b</sup>	467,808	467,808	369,718
FY 2010	504,238	504,238	494,382
FY 2011	501,788	501,788	533,087
FY 2012	435,172	435,172	705,854
FY 2013	400,990	400,990	500,649
FY 2014 Reprogramming	59,242	59,242	0
FY 2014	343,500	343,500	345,286
FY 2015	196,000	196,000	362,857
FY 2016	196,000	196,000	TBD
FY 2017	196,000	196,000	TBD
FY 2018	196,000	196,000	TBD
FY 2019	196,000	196,000	TBD
Total, TEC	TBD	TBD	TBD

<sup>a</sup> MOX funded within the Nuclear Energy appropriation.

<sup>b</sup> MOX funded with the Other Defense Activities appropriation.

(dollars in thousands)			
	Appropriations	Obligations	Costs
Other Project Cost (OPC)			
OPC except D&D			
FY 1999	5,000	5,000	4,500
FY 2000	5,000	5,000	4,500
FY 2001	5,000	5,000	5,000
FY 2002	5,000	5,000	5,000
FY 2003	8,000	8,000	5,000
FY 2004	9,292	9,292	11,500
FY 2005	9,357	9,357	3,749
FY 2006	28,200	21,300	7,023
FY 2007	915	7,792	9,278
FY 2008 <sup>a</sup>	47,068	47,068	15,746
FY 2009 <sup>b</sup>	0	0	21,451
FY 2010	56,466	56,466	19,344
FY 2011	4,000	4,000	50,211
FY 2012	47,035	47,035	33,142
FY 2013	40,000	40,000	35,065
FY 2014	40,000	40,000	50,886
FY 2015	25,000	25,000	53,915
FY 2016	25,000	25,000	TBD
FY 2017	25,000	25,000	TBD
FY 2018	25,000	25,000	TBD
FY 2019	25,000	25,000	TBD
Total, OPC except D&D	TBD	TBD	TBD

<sup>a</sup> MOX funded within the Nuclear Energy appropriation.

<sup>b</sup> MOX funded with the Other Defense Activities appropriation.

(dollars in thousands)			
	Appropriations	Obligations	Costs
Total Project Cost (TPC)			
FY 1999	33,000	14,600	7,045
FY 2000	17,375	35,775	38,012
FY 2001	30,943	30,943	34,938
FY 2002	70,993	70,993	57,513
FY 2003	100,088	100,088	87,022
FY 2004	369,566	90,373	104,957
FY 2005	374,444	304,652	220,550
FY 2006	246,000	358,622	187,851
FY 2007 <sup>a</sup>	263,415	270,292	186,685
FY 2008 <sup>b c</sup>	278,789	393,252	283,878
FY 2008 (rescinded PY unobligated balance)	-115,000	0	0
FY 2009 <sup>d e</sup>	467,808	467,808	391,169
FY 2010 <sup>f</sup>	560,704	560,704	513,726
FY 2011 <sup>g</sup>	505,788	505,788	583,298
FY 2012	482,207	482,207	738,996
FY 2013	440,990	440,990	535,714
FY 2013 Reprogramming	59,242	59,242	0
FY 2014	383,500	383,500	396,172
FY 2015	221,000	221,000	416,772
FY 2016	221,000	221,000	TBD
FY 2017	221,000	221,000	TBD
FY 2018	221,000	221,000	TBD
FY 2019	221,000	221,000	TBD
Total, TPC <sup>h</sup>	TBD	TBD	TBD

<sup>a</sup> Includes \$31 million for long-lead procurements.

<sup>b</sup> Includes \$37.6 million for long-lead procurements.

<sup>c</sup> MOX funded within the Nuclear Energy appropriation.

<sup>d</sup> MOX funded with the Other Defense Activities appropriation.

<sup>e</sup> Includes \$177.4 million for long-lead procurements.

<sup>f</sup> Includes \$167.9 million for long-lead procurements.

<sup>g</sup> Includes \$67.1 million for long-lead procurements.

<sup>h</sup> Schedules, dates, and costs will be updated to reflect the decision on the path forward for plutonium disposition.

**6. Details of Project Cost Estimate**

	(dollars in thousands)		
	Current Total Estimate <sup>a</sup>	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	TBD	TBD	916,148
Contingency	0	0	0
Total, PED	TBD	TBD	916,148
Construction			
Site Preparation	39,957	39,957	39,929
Equipment	TBD	TBD	251,791
Other Construction	TBD	TBD	2,067,639
Contingency	TBE	TBE	663,121
Total, Construction	TBD	TBD	3,022,480
Total, TEC	TBD	TBD	3,938,628
Contingency, TEC	TBD	TBD	663,121
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	37,723	37,723	37,723
Conceptual Design	0	0	0
Start-up	TBD	TBD	650,468
Other OPC	TBD	TBD	NA
Contingency	TBD	TBD	187,510
Total, OPC except D&D	TBD	TBD	875,701
D&D			
D&D	0	0	0
Contingency	0	0	0
Total, D&D	0	0	0
Total, OPC	TBD	TBD	875,701
Contingency, OPC	TBD	TBD	187,510
Total, TPC	TBD	TBD	4,814,329
Total, Contingency	TBD	TBD	850,631

<sup>a</sup> Schedules, dates, and costs will be updated to reflect the decision on the path forward for plutonium disposition

## 7. Schedule of Appropriation Requests

(dollars in thousands)

		Prior Years	FY 2014 <sup>a</sup>	FY 2015 <sup>b</sup>	FY 2016 <sup>b</sup>	FY 2017 <sup>b</sup>	FY 2018 <sup>b</sup>	FY 2019 <sup>b</sup>	Outyears <sup>b</sup>	Total
FY 2009	TEC	3,353,725	158,325	125,611	300,967	0	0	0	0	3,938,628
	OPC	632,806	149,192	85,771	7,932	0	0	0	0	875,701
	TPC	3,986,531	307,517	211,382	308,899	0	0	0	0	4,814,329
FY 2010	TEC	3,702,589	109,661	125,773	37,805	0	0	0	0	3,975,828
	OPC	553,002	230,697	91,603	5,999	0	0	0	0	881,301
	TPC	4,255,591	340,358	217,376	43,804	0	0	0	0	4,857,129
FY 2011 <sup>c,d</sup>	TEC	3,702,589	109,661	125,773	37,805	0	0	0	0	3,975,828
	OPC	553,002	230,697	91,603	5,999	0	0	0	0	881,301
	TPC	4,255,591	340,358	217,376	43,804	0	0	0	0	4,857,129
FY 2012	TEC	3,702,589	109,661	125,773	37,805	0	0	0	0	3,975,828
	OPC	553,002	230,697	91,603	5,999	0	0	0	0	881,301
	TPC	4,255,591	340,358	217,376	43,804	0	0	0	0	4,857,129
FY 2013	TEC	3,844,589	118,661	9,773	2,805	0	0	0	0	3,975,828
	OPC	411,002	221,697	207,603	40,999	0	0	0	0	881,301
	TPC	4,255,591	340,358	217,376	43,804	0	0	0	0	4,857,129
FY 2014	TEC	3,893,622	320,000	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	270,333	40,000	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	TPC	4,163,955	360,000	TBD	TBD	TBD	TBD	TBD	TBD	TBD
FY 2014 Reprogramming	TEC	3,856,777	59,243	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	OPC	270,333	0	0	0	0	0	0	0	270,333
	TPC	4,127,110	59,243	0	0	0	0	0	0	TBD
FY 2015	TEC	3,856,777	402,743	196,000	196,000	196,000	196,000	196,000	TBD	TBD
	OPC	270,333	40,000	25,000	25,000	25,000	25,000	25,000	TBD	TBD
	TPC	4,127,110	442,743	221,000	221,000	221,000	221,000	221,000	TBD	TBD

## 8. Related Operations and Maintenance Funding Requirements

Start of Operation of Beneficial Occupancy (fiscal quarter or date)	TBD
Expected Useful Life (number of years) (after hot startup) <sup>e</sup>	TBD
Expected Future Start of D&D of this capital asset (fiscal quarter)	N/A

### (Related Funding Requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total	Previous Total	Current Total	Previous Total
Operations	0	470,021	0	7,111,447
Security	0	73,190	0	1,097,844
Total, Operations and Security	0	543,211	0	8,209,291

<sup>a</sup> These numbers reflect the slow-down of the current plutonium disposition strategy while assessing alternative strategies.

<sup>b</sup> Schedules, dates, and costs will be updated to reflect the decision on the path forward for plutonium disposition.

<sup>c</sup> FY 2011 OPC appropriations were only \$4 million vs. \$30 million planned.

<sup>d</sup> FY 2011 total estimated cost appropriations were increased by \$26 million.

<sup>e</sup> The nominal design life of the facility is 40 years, however, it will take approximately 15 years to complete the 34 MT mission.

The MFFF life cycle cost has not been updated from the FY 2014 submittal. Upon selecting a preferred option, the Department will commission an independent assessment of the option. This independent assessment will be conducted by an organization external to the Department and its laboratories and will include establishment of life cycle costs, schedules, performance and scope of the selected option.

#### 9. Required D&D Information

Area	Square Feet
Area of new construction	441,000
Area of existing facility(s) being replaced	N/A
Area of additional D&D space to meet the “one-for-one” requirement	N/A

Name(s) and site location(s) of existing facility(s) to be replaced:

The new construction is not replacing an existing facility.

#### 10. Acquisition Approach

The procurement strategy for the MOX facility involved awarding a base contract to Duke Cogema Stone & Webster (now Shaw AREVA MOX Services) in March 1999 for design, licensing, and irradiation services associated with fuel qualification activities and reactor licensing. Three options were included in the base contract for: (1) construction and management oversight; (2) hot start-up, operations, and irradiation services; and (3) deactivation—which can be awarded separately. Option 1 was exercised by DOE in May 2008. In January 2009, an Early Option 2 proposal was submitted to NNSA for consideration. The proposed work scope included the fabrication of eight fuel assemblies as a part of the facility hot start-up plan.

Shaw AREVA MOX Services is a partnership of The Shaw Group and the French company, AREVA. In February 2013 Chicago Bridge and Iron (CB&I) Company completed its acquisition of The Shaw Group. Since CB&I is a foreign-based company, a proxy company has been formed to address U.S. government foreign ownership and control regulations. As a result, a proxy company under CB&I named Shaw Project Services Group, LLC, was formed to oversee Shaw’s security-sensitive work such as the MFFF Project.

Physical construction is being performed through a combination of fixed-price sub-contracts and MOX Services’ direct managed construction craft. A combination of award fees and incentive fees are included in the overall contract with MOX Services to reward performance within established project baselines.





**99-D-141-02, Waste Solidification Building  
Savannah River Site, Aiken, South Carolina  
Project is for Construction**

**1. Significant Changes**

The most recent Department of Energy (DOE) Order 413.3B approved Critical Decision (CD) is CD-3, Start of Construction, and was approved on December 10, 2008 with a Total Project Cost (TPC) of \$344.455 million and CD-4 of fiscal year (FY) 2013. In December 2012, the Acquisition Executive approved a baseline change proposal with a TPC of \$414 million and a completion date of FY 2015.

A Federal Project Director (FPD), certified at Level 3, is assigned to this project. This Project Data Sheet (PDS) does not include a new start for the budget year.

This PDS is an update of the FY 2014 PDS.

The Administration remains firmly committed to the overarching goals of the plutonium disposition program to: 1) dispose of excess U.S. plutonium; and 2) achieve Russian disposition of equal quantities of plutonium. The Administration recognizes the importance of the U.S.-Russia Plutonium Management and Disposition Agreement (PMDA), whereby each side committed to dispose of at least 34 metric tons of weapon-grade plutonium. To dispose of U.S. plutonium, the program has been constructing the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF), which would enable the Department to dispose of weapon-grade plutonium by converting it into MOX fuel and irradiating it in commercial nuclear reactors. During FY 2013, the Administration slowed activities associated with the current plutonium disposition strategy while it conducted an analysis of options to complete the mission more efficiently. In the course of this analysis, it was determined that the MOX fuel approach is significantly more expensive than anticipated, even with consideration of potential contract restructuring and other improvements that have been made to the MOX project. Due to these increases and the current budget environment, the MOX fuel approach is currently not viable. As a result, the MOX project will be placed in cold stand-by while the Department further studies implementation and costs of options to complete the plutonium disposition mission more efficiently.

The Acquisition Executive approved the WSB baseline change proposal (BCP) in December 2012 with a TPC of \$414 million and a completion date of August 2015. The project rebaseline that was approved in December 2012 includes NNSA contingency for subcontracting partners Request for Equitable Adjustments (REA). Subcontracting partners REA claims are expected to impact project contingency.

The SRNS' site-wide Earned Value Management System (EVMS) certification - a contractual requirement - was suspended in FY 2013 due largely to SRNS' inability to implement effective corrective actions on the EVMS for the WSB project. SRNS is working to make the necessary modifications sufficient to reestablish Government confidence in the earned value system. DOE will conduct a follow-up review to recertify the EVMS and validate compliance with requirements.

Although the analysis is not yet complete, sufficient information existed to be able to state that the first receipt of liquids from the MFFF will be a minimum of five years after completion of the WSB project. Given this information, a number of activities (primarily associated with operational readiness reviews) were identified which were unnecessary in light of the potential length of time until operation as a radiological facility. Consequently, a letter of direction was provided to the WSB contracting partner in December 2013 to modify completion criteria for the project and to place the facility in a lay-up condition while the Department concludes the analysis of options. This budget requests \$5 million in TEC funds but no OPC funds for FY 2015. Although this request will not fully fund the TPC of \$414 million, the funding should be adequate to complete the fixed price construction sub-contract and to place the project in a lay-up condition that will preserve and maintain the facility and equipment until the capability may be required. The contracting partner would conduct system and component testing but would not perform integrated system testing, minimizing the need for additional OPC funds. The largest uncertainty to the final project cost is the resolution of outstanding REA's and associated legal costs.

**2. Design, Construction, and D&D Schedule**

(fiscal quarter or date)								
	CD-0 <sup>a</sup>	CD-1 <sup>b</sup>	Design Complete	CD-2	CD-3	CD-4	D&D Start	D&D Complete
FY 1999	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2000	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2001	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2002	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2003	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2004	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2005	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2006	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2007	10/31/1997	10/31/1997	TBD	TBD	TBD	TBD	N/A	N/A
FY 2008	10/31/1997	10/31/1997	3QFY2008	4QFY2008	1QFY2009	TBD	N/A	N/A
FY 2009	10/31/1997	10/31/1997	3QFY2008	4QFY2008	4QFY2008	1QFY2013	N/A	N/A
FY 2010	10/31/1997	10/31/1997	05/09/2008	12/10/2008	12/10/2008	4QFY2013	N/A	N/A
FY 2011	10/31/1997	10/31/1997	05/09/2008	12/10/2008	12/10/2008	4QFY2013	N/A	N/A
FY 2012	10/31/1997	10/31/1997	05/09/2008	12/10/2008	12/10/2008	4QFY2013	N/A	N/A
FY 2012								
Reprogramming <sup>c</sup>	10/31/1997	10/31/1997	05/09/2008	12/10/2008	12/10/2008	3QFY2014	N/A	N/A
FY 2014	10/31/1997	10/31/1997	05/09/2008	12/10/2008	12/10/2008	4QFY2015	N/A	N/A
FY 2015	10/31/1997	10/31/1997	05/09/2008	12/10/2008	12/10/2008	4QFY2015	N/A	N/A

CD-0 – Approve Mission Need

CD-1 – Approve Alternative Selection and Cost Range

CD-2 – Approve Performance Baseline

CD-3 – Approve Start of Construction

CD-4 – Approve Start of Operations or Project Closeout

D&amp;D Start – Start of D&amp;D work

D&amp;D Complete – Completion of D&amp;D work

**3. Baseline and Validation Status**

(dollars in thousands)							
	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 1999	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2000	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2001	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2002	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2003	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2004	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2005	TBD	TBD	TBD	TBD	N/A	TBD	TBD
FY 2006	25,700	TBD	TBD	TBD	N/A	TBD	25,700
FY 2007	29,300	160,000	189,300	36,708	N/A	36,708	226,008
FY 2008	31,183	171,013	202,196	42,908	N/A	42,908	245,104

<sup>a</sup> Approval of mission need for waste treatment activities was originally obtained in 1997 as part of the scope of the PDCF project and was reinforced in the Record of Decision.

<sup>b</sup> Preliminary design activities for the WSB were initiated in February 2003, but suspended in 2004 due to uncertainties in the schedule of the overall plutonium disposition program and the related Russian disposition program. These issues were resolved and design activities were resumed in October 2006.

<sup>c</sup> The FY 2012 reprogramming was executed in FY 2013.

	(dollars in thousands)						
	TEC, Design	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2009	36,102	159,367	195,469	82,718	N/A	82,718	278,187
FY 2010	42,542	201,789	244,331	100,124	N/A	100,124	344,455
FY 2011	42,652	201,679	244,331	100,124	N/A	100,124	344,455
FY 2012	42,652	201,679	244,331	100,124	N/A	100,124	344,455
FY 2012							
Reprogramming <sup>a</sup>	42,652	243,883	286,535	97,465	N/A	97,465	384,000
FY 2014	42,652	TBD	TBD	TBD	N/A	TBD	TBD
FY 2015	42,652	TBD	TBD	TBD	N/A	TBD	TBD

#### 4. Project Description, Justification, and Scope

##### **Mission Need**

The mission of the WSB is to process radioactive waste streams from the MFFF into the following waste forms: (1) a waste form that is suitable for shipment and disposal as transuranic waste at the Waste Isolation Pilot Plant, and (2) low-level waste (LLW) that is suitable for disposal at government or commercial LLW repositories. The WSB would provide a waste treatment capability not currently available at the Savannah River Site necessary to receive and treat unique waste streams generated by plutonium disposition.

##### **Scope and Justification**

The WSB will process radioactive liquid waste streams from the MFFF into a solid waste form for ultimate disposal. The WSB is required to be operational to receive water runs from MFFF in support of MFFF cold start-up testing. The radioactive liquid waste consists of one high-activity and one low-activity stream. The high-activity stream contains significant amounts of americium removed from plutonium oxide during mixed oxide (MOX) aqueous polishing operations. The low-activity stream contains stripped uranium also removed from MOX aqueous polishing operations. The projected WSB operating life is approximately 20 years; however the facility has a design life of 30 years. After completing its mission, the WSB will be deactivated, decontaminated, and decommissioned over approximately two to four years.

The scope of this project consists of the following activities: design, construction, procurement, installation, testing, demonstration, and start-up testing of structures and equipment. The processing facility is approximately 33,000 square feet and is designed as a single story structure of hardened concrete. An additional separate structure, consisting of a covered concrete pad, will be constructed to provide temporary storage of containerized waste following treatment prior to packaging for shipment. The major process equipment includes tanks, evaporators, and solidification equipment.

##### **FY 2014 and FY 2015 Planned Description of Activities**

In FY 2014, the fixed-price construction contracting partner will complete facility construction (mechanical completion) and turnover of the facility to the M&O Contracting partner; and perform limited system and component testing.

In FY 2015, perform limited system and component testing, complete the construction sub-contract, and place the facility into a lay-up mode while the Department completes the on-going analysis for plutonium disposition.

##### **Risk Management**

The WSB has implemented and maintained an active risk management process throughout the project lifecycle. Risks are routinely reviewed, assessed and updated. Currently, the project has no high risks identified following mitigation measures. The most significant risk affecting the project are shown in the following table:

The WSB project is being conducted in accordance with the project management requirements in Department of Energy Order 413.3B, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

<sup>a</sup> The FY 2012 reprogramming was executed in FY 2013.

Risk	Potential Impacts
1. Productivity assumptions will not be met.	Potential to delay completion date, increasing costs to the project due to longer project duration. Additional funding beyond the current approved baseline could be required in order to complete the project.
2. Settlement of REA and associated legal costs could exceed assumptions.	Potential to exceed the Total Project Cost. Additional funding beyond the current approved baseline could be required in order to settle claims and litigation costs.

(dollars in thousands)			
	Appropriations	Obligations	Costs
Design			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	6,195	6,195	4,610
FY 2004	2,100	2,100	3,114
FY 2005	0	0	0
FY 2006	2,354	2,354	1,003
FY 2007	15,500	15,500	11,745
FY 2008 <sup>a</sup>	16,393	16,393	20,072
FY 2009 <sup>a</sup>	110	110	2,108
Total, PED	42,652	42,652	42,652
Construction			
FY 2006	0	0	0
FY 2007	0	0	0
FY 2008 <sup>a</sup>	17,207	17,207	0
FY 2009 <sup>a</sup>	39,890	39,890	15,859
FY 2010	70,000	70,000	49,541
FY 2011	57,000	57,000	64,158
FY 2012	17,582	17,582	40,462
FY 2013	48,405	48,405	31,669
FY 2014	0	0	34,628
FY 2015	5,125	5,125	18,892
Total, Construction	TBD	TBD	TBD
TEC			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	6,195	6,195	4,610
FY 2004	2,100	2,100	3,114
FY 2005	0	0	0
FY 2006	2,354	2,354	1,003
FY 2007	15,500	15,500	11,745
FY 2008 <sup>a</sup>	33,600	33,600	20,072
FY 2009 <sup>a</sup>	40,000	40,000	17,967
FY 2010	70,000	70,000	49,541

<sup>a</sup> WSB funded within the Weapons Activities appropriation in Directed Stockpile Work.

(dollars in thousands)			
	Appropriations	Obligations	Costs
FY 2011	57,000	57,000	64,158
FY 2012	17,582	17,582	40,462
FY 2013	48,405	48,405	31,669
FY 2014	0	0	34,628
FY 2015	5,125	5,125	18,892
Total, TEC	TBD	TBD	TBD
Other Project Cost (OPC)			
OPC except D&D			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	4,071	4,071	2,650
FY 2004	0	0	1,041
FY 2005	-50	-50	208
FY 2006	1,400	1,400	79
FY 2007	5,060	5,060	2,145
FY 2008 <sup>a</sup>	5,000	5,000	5,415
FY 2009 <sup>a</sup>	7,000	7,000	4,526
FY 2010	7,000	7,000	5,486
FY 2011	21,500	21,500	11,184
FY 2012	6,945	6,945	19,742
FY 2013	25,798	25,798	13,348
FY 2014	20,000	20,000	24,886
FY 2015	0	0	13,014
Total, OPC except D&D	TBD	TBD	TBD
Total OPC	TBD	TBD	TBD
Total Project Cost (TPC)			
FY 1999	0	0	0
FY 2000	0	0	0
FY 2001	0	0	0
FY 2002	0	0	0
FY 2003	10,266	10,266	7,260
FY 2004	2,100	2,100	4,155
FY 2005	-50	-50	208
FY 2006	3,754	3,754	1,082
FY 2007	20,560	20,560	13,890
FY 2008 <sup>a</sup>	38,600	38,600	25,487

<sup>a</sup> WSB funded within the Weapons Activities appropriation in Directed Stockpile Work.

(dollars in thousands)			
	Appropriations	Obligations	Costs
FY 2009 <sup>a b</sup>	47,000	47,000	22,493
FY 2010 <sup>c</sup>	77,000	77,000	55,027
FY 2011 <sup>d</sup>	78,500	78,500	75,342
FY 2012	24,527	24,527	60,204
FY 2013	74,203	74,203	45,017
FY 2014	20,000	20,000	59,514
FY 2015	5,125	5,125	31,906
Total, TPC	TBD	TBD	TBD

<sup>a</sup> WSB funded within the Weapons Activities appropriation in Directed Stockpile Work.

<sup>b</sup> Includes \$1.4M for long-lead procurements.

<sup>c</sup> Includes \$14.2M for long-lead procurements.

<sup>d</sup> Includes \$11.1M for long-lead procurements.



**6. Details of Project Cost Estimate**

	(dollars in thousands)		
	Current Total Estimate <sup>c</sup>	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	42,652	42,652	41,825
Contingency	0	0	717
Total, PED	42,652	42,652	42,542
Construction			
Site Preparation <sup>a</sup>	10,798	10,798	1,300
Equipment <sup>b</sup>	31,359	31,359	42,585
Other Construction	TBD	TBD	118,025
Contingency	TBD	TBD	39,879
Total, Construction	TBD	TBD	201,789
Total, TEC	TBD	TBD	244,331
Contingency, TEC	TBD	TBD	40,596
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	2,650	2,650	2,650
Conceptual Design	27,440	27,440	27,277
Start-up	TBD	TBD	49,500
Other OPC	TBD	TBD	NA
Contingency	TBD	TBD	20,697
Total, OPC except D&D	TBD	TBD	100,124
D&D			
D&D	N/A	N/A	N/A
Contingency	N/A	N/A	N/A
Total, D&D	N/A	N/A	N/A
Total, OPC	TBD	TBD	100,124
Contingency, OPC	TBD	TBD	20,697
Total, TPC	TBD	TBD	344,455
Total, Contingency	TBD	TBD	61,293

<sup>a</sup> Differences between previous and current estimates for site preparation reflect costs that were incorrectly categorized as "other construction" in the original estimate.

<sup>b</sup> Differences in equipment costs are primarily driven by underruns in long-lead equipment contracts.

<sup>c</sup> Reflects the total of the current approved BCP of \$414M.

**7. Schedule of Appropriation Requests**

		(dollars in thousands)								
		Prior Years	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	Outyears	Total	
FY 2008	TEC	0							0	
	OPC	42,908							42,908	
	TPC	42,908	0	0	0	0	0	0	42,908	
FY 2009	TEC	195,469							195,469	
	OPC	82,718							82,718	
	TPC	278,187	0	0	0	0	0	0	278,187	
FY 2010	TEC	244,331							244,331	
	OPC	100,124							100,124	
	TPC	344,455	0	0	0	0	0	0	344,455	
FY 2011	TEC	244,331							244,331	
	OPC	100,124							100,124	
	TPC	344,455	0	0	0	0	0	0	344,455	
FY 2012	TEC	244,331							244,331	
	OPC	100,124							100,124	
	TPC	344,455	0	0	0	0	0	0	344,455	
FY 2012 Reprogramming <sup>a</sup>	TEC	276,535							276,535	
	OPC	83,724							83,724	
	TPC	360,259	0	0	0	0	0	0	360,259	
FY 2014	TEC	294,225	0	0	0	0	0	0	TBD	
	OPC	83,724	20,000	0	0	0	0	0	TBD	
	TPC	377,949	20,000	0	0	0	0	0	TBD	
FY 2015	TEC	292,736	0	5,125	0	0	0	0	TBD	
	OPC	83,724	20,000	0	0	0	0	0	TBD	
	TPC	376,460	20,000	5,125	0	0	0	0	TBD	

**8. Related Operations and Maintenance Funding Requirements <sup>b</sup>**

99-D-141-02 – Waste Solidification Building

Start of Operation or Beneficial Occupancy (fiscal quarter or date)

TBD

Expected Useful Life (number of years)

TBD

Expected Future Start of D&amp;D of this capital asset (fiscal quarter)

TBD

<sup>a</sup> The FY 2012 reprogramming was executed in FY 2013.<sup>b</sup> This section will be updated to coincide with the MFFF schedule when it has been defined and approved.

**(Related Funding requirements)**

99-D-141-02 – Waste Solidification Building

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Total	Previous Total	Current Total	Previous Total
Operations	0	73,611	0	1,472,220
Maintenance	0	21,901	0	438,020
Total, Operations and Maintenance	0	95,512	0	1,910,240

The WSB life cycle cost has not been updated from the FY 2014 submittal. Upon selecting a preferred option, the Department will commission an independent assessment of the option. This independent assessment will be conducted by an organization external to the Department and its laboratories and will include establishment of life cycle costs, schedules, performance and scope of the selected option.

**9. Required D&D Information**

Area	Square Feet
Area of new construction	33,000
Area of existing facility(s) being replaced	Not Applicable
Area of additional D&D space to meet the “one-for-one” requirement	Not Applicable

Name(s) and site location(s) of existing facility(s) to be replaced:

The new construction is not replacing an existing facility.

**10. Acquisition Approach****99-D-141-02 – Waste Solidification Building**

The WSB design service was procured through the SRS M&O contract. Purchase orders for procurement of long-lead equipment for the WSB were issued in FY 2009. The SRS M&O is serving as the construction manager. Fixed-price construction sub-contracts for the WSB were awarded on the basis of competitive bidding. The acquisition strategy has been finalized.